

What is claimed is:

- 1 1. A system for collecting, storing, and reviewing data related to events occurring under
2 the direction of an automated controller, comprising:
 - 3 a) a digital signal capture card for sensing and collecting discrete digital
4 signals;
 - 5 b) a multi-port serial port expansion card for sensing and collecting serial
6 digital communication messages;
 - 7 c) a video frame grabber and compression card for sensing and collecting
8 video signals;
 - 9 d) means for indexing and storing said digital and video signals;
 - 10 e) means for relating occurrence of a particular item of a particular data
11 type, whether digital, serial or video, to the most closely time-
12 related data item from the other said data types; and
 - 13 f) a display for control of said system and presentation of recorded data to a
14 user during review.
- 1 2. The system of claim 1, wherein reviewed discrete digital data are presented in graphical
2 strip chart format.
- 1 3. The system of claim 1, wherein reviewed video data are presented in picture format of
2 still image or time-motion video images.
- 1 4. The system of claim 1, wherein reviewed serial communication data are presented in
2 time-ordered message sequence.
- 1 5. The system of claim 1, wherein reviewed serial communication data are presented as
2 recorded in hexadecimal or ASCII format.
- 1 6. The system of claim 1, wherein reviewed serial communication data are translated
2 according to message parsing rules.
- 1 7. A system for collecting, storing, and reviewing data related to events occurring under
2 the direction of an automated controller, comprising a display for displaying said
3 data, operatively connected to:

- 4 a) means for sensing and collecting discrete digital signals;
- 5 b) means for indexing and storing said digital signals;
- 6 c) means for sensing and collecting serial digital communication messages;
- 7 d) means for indexing and storing said serial messages;
- 8 e) means for sensing and collecting video signals;
- 9 f) means for indexing and storing said video signals; and
- 10 h) means for relating occurrence of a particular item of a particular data
11 type, whether digital, serial or video, to the most closely time-
12 related data item from the other said data types, retrieving and
13 displaying said time-related data items, according to data the type
14 and data item directed by a user,

15 wherein said display displays each data type, whether digital, serial or
16 video, in a time-synchronized manner, and

17 wherein said user directs a displayed time of any individual data type,
18 whether digital, serial or video, and the remaining two data
19 types are automatically moved to a newly directed time.

- 1 8. The system of claim 7, wherein reviewed discrete digital data are presented in graphical
2 strip chart format.
- 1 9. The system of claim 7, wherein reviewed video data are presented in picture format of
2 still image or time-motion video images.
- 1 10. The system of claim 7, wherein reviewed serial communication data are presented in
2 time-ordered message sequence.
- 1 11. The system of claim 7, wherein reviewed serial communication data are presented as
2 recorded in hexadecimal or ASCII format.
- 1 12. The system of claim 7, wherein reviewed serial communication data are translated
2 according to message parsing rules.

- 1 13. The system of claim 1, wherein one or more of said serial digital communication
- 2 messages are transmitted via serial communication port and wherein said digital
- 3 signals are asserted via a digital input/output card.
- 1 14. The system of claim 13, wherein recorded video is output for viewing.